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Immune function following exposure to atrazine.

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Atrazine (ATR) is a common herbicidal contaminant of ground water in agricultural areas in the USA and known immunotoxin. Previously, we and others have reported that prenatal/lactational atrazine exposure affects the function of young adult rodent immune systems in gender dependant manner. This study extends this evaluation of the immune system to six month old mice. We hypothesized that prenatal/lactational ATR exposure would cause greater health complications as the mice aged. The immune response of offspring from ATR exposed dams was assessed using the ELISpot analysis and the heat-killed *Streptococcus pneumoniae* (HKSP) model antigen. We exposed pregnant female mice to ATR for twenty-one days starting at day ten post-coitus (d10-pc) via a time-release pellet implanted subcutaneously. The matrix of the pellet allowed for the daily release of 0.7 mg of atrazine for twenty-one days. Three month old male offspring from the ATR d10-pc dams showed no change in body size compared to controls and a significant immunopotentialiation with an increase in the B-cell response to HKSP and an increased CTL response in comparison to d10-pc placebo-exposed animals. Female offspring at 3 months of age were not significantly different from controls. In contrast to results observed at three months of age, at six months of age male offspring were significantly smaller than the control mice. The splenic B-cell response to HKSP vaccine was also depressed in male offspring. These results demonstrate a gender- and age-dependant effect of prenatal exposure to ATR on the adult immune system in mice. Sponsored by NIOSH grant OH07686 and NIEHS grant ES010953.